7. The method of Claim 2 wherein the applied voltage has a pulsed waveform having a duty cycle between 0.001 and 0.5.

8. The method of Claim 2 wherein the voltage is switched on and off by a switching assembly comprising an insulated gate bipolar transistor.

9. The method of Claim 2 wherein the applied voltage has a waveform having a frequency of between DC and 100 kHz.

10. The method of Claim 2 wherein a metal hydride is formed on an electrode which dissociates to form hydrogen and/or deuterium atoms.

12. The method of Claim 2 wherein the current density generated by the applied voltage is 400,000 A/m^2 or above.

13. The method of Claim 2 and further comprising the step of feeding the electrolyte past the electrodes.

16. The method of Claim 2 and further comprising the step of generating a magnetic field in the region of the electrodes.

19. The method of Claim 16 wherein the magnetic field is arranged to cause the plasma discharge generated adjacent the cathode to be spaced therefrom.

20. The method of Claim 2 wherein hydrogen and/or deuterium atoms are formed using a first cathode and the voltage applied to generate the plasma discharge is applied across an anode and a second cathode.

21. The method of Claim 20 wherein the second cathode is downstream from the first cathode.

22. The method of Claim 2 wherein a cathode electrode comprises tungsten, zirconium, stainless steal, nickel and/or tantalum.

24. The method of Claim 2 wherein the anode electrode is formed of a material which is inert with respect to the electrolyte.

26. The method of claim 2 wherein the temperature of the plasma is approximately 6000K or above.

27. The method of claim 2 comprising the step of varying the ratio of catalyst to water in the electrolyte in the range 1 to 20 mMol.

28. The method of claim 2 wherein the electrolyte comprises water and/or deuterated water and/or deuterium oxide.

30. The method of Claim 28 and further comprising the step of varying the ratio of water to deuterium oxide and/or deuterated water in the electrolyte to control energy generation.

31. The method of claim 2 and further comprising the step of heating the electrolyte to a temperature between 40 to 80°C prior to generating the plasma discharge.

32. The method of claim 2 wherein fusion occurs via at least one of the following pathways:

$$^{2}_{1}D + {}^{2}_{1}D = {}^{3}_{2}He + {}^{1}_{0}n$$

or

$$^{2}_{1}D + {}^{2}_{1}D = {}^{3}_{1}T + {}^{1}_{1}H$$

or

$$^{1}_{1}H + {}^{1}_{1}H = {}^{2}_{1}D + \beta^{+} + \tau$$

33. Apparatus for carrying out a method of releasing energy comprising an anode, first and second cathodes, a reaction vessel having an inlet and an outlet, means for feeding an electrolyte through the vessel from its inlet to its outlet, the electrolyte having a catalyst therein suitable for initiating transitions of hydrogen and/or deuterium atoms in the electrolyte to a sub-ground energy state, means for applying a voltage across the anode and the first cathode to form hydrogen and/or deuterium atoms, and means for applying a voltage across the anode and second cathode to generate a plasma discharge in the electrolyte, the second cathode being downstream from the first cathode.

The Commissioner is hereby authorized to charge Account No. 13-0017 for any fee deficiency, or credit any overpayment to our Deposit Account No. 13-0017.

Respectfully submitted,
McANDREWS, HELD & MALLOY, LTD.,

Dated: April 18, 2001

By:_____
Lawrence M. Jarvis
Reg. No. 27,341